

Serial No. 09/931,685
August 16, 2004
Reply to the Office Action dated May 17, 2004
Page 2 of 11

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (canceled)

Claim 2 (currently amended): A method for manufacturing a nonreciprocal circuit device comprising the steps of:

providing a permanent magnet;

providing a center-electrode assembly formed by the method according to Claim 4-5 to which a direct-current magnetic field is applied by the permanent magnet; and

providing a metallic case accommodating the permanent magnet and the center-electrode assembly.

Claim 3 (currently amended): A method for manufacturing a communication apparatus comprising the steps of:

providing a nonreciprocal circuit device formed by the method according to Claim 2; and

~~connected thereto,~~ connecting at least one of a transmitting circuit and a reception circuit to the nonreciprocal circuit device.

Claim 4 (currently amended): A method for manufacturing a communication apparatus comprising the steps of:

providing a center-electrode assembly formed by the method according to Claim 4-5; and

~~connected thereto,~~ connecting at least one of a transmission circuit and a

Serial No. 09/931,685
August 16, 2004
Reply to the Office Action dated May 17, 2004
Page 3 of 11

reception circuit to the center-electrode assembly.

Claim 5 (currently amended): A method for manufacturing a center-electrode assembly comprising the steps of:

forming through-holes in a ferrite mother board;

alternately depositing a plurality of center-electrode patterns and an plurality of insulating films on the top surface of the ferrite mother board, the center-electrode patterns are formed by at least one of a plating method, a printing method, a sputtering method, a vapor deposition method, and a conductive paste applying method;

forming a conductive pattern on the back surface of the ferrite mother board by at least one of a plating method, a printing method, a sputtering method, a vapor deposition method, and a conductive paste applying method;

cutting a center-electrode assembly from the ferrite mother board by cutting the ferrite mother board at intervals of a predetermined size; and

forming connecting electrodes in the through-holes in the center electrode assembly by at least one of a plating method, a printing method, a sputtering method, a vapor deposition method and a conductive paste applying method to electrically connect the center-electrode patterns formed on the top surface and the conductive pattern formed on the back surface; wherein

the plurality of center-electrode patterns and the plurality of insulating films are alternately deposited such that each of the plurality of center electrode patterns includes a portion that is in direct contact with a respective one of the plurality of insulating films and another portion that is in direct contact with the top surface of the ferrite mother board.

Serial No. 09/931,685
August 16, 2004
Reply to the Office Action dated May 17, 2004
Page 4 of 11

Claim 6 (currently amended): The method for manufacturing A-a center-electrode assembly according to claim 45, wherein the connecting electrodes are formed on grooves formed in the sides of the ferrite.

Claim 7 (currently amended): The method for manufacturing A-a center-electrode assembly according to claim 45, further comprising the step of:
forming ports directly formed on the sides of the ferrite; wherein
the ports are electrically connected with the connecting electrodes via the plurality of center-electrode patterns.

Claim 8 (currently amended): The method for manufacturing A-a center-electrode assembly according to claim 7, further comprising the step of:
forming gaps formed on the bottom surface of the ferrite; wherein
the gaps are provided between ends of the ports and an end of the conductive pattern.

Claim 9 (currently amended): The method for manufacturing A-a center-electrode assembly according to claim 45, further comprising the step of:
forming ports directly formed on the upper surface of the ferrite; wherein
the ports are electrically connected with the connecting electrodes via the plurality of center-electrode patterns.

Claim 10 (canceled)

Claims 11 (new): A center-electrode assembly comprising:
a ferrite;
center-electrode patterns and insulating films disposed on the top surface of the ferrite;

Serial No. 09/931,685
August 16, 2004
Reply to the Office Action dated May 17, 2004
Page 5 of 11

a conductive pattern formed on the bottom surface of the ferrite; and
connecting electrodes directly formed on sides of the ferrite; wherein
the connecting electrodes electrically connect the center-electrode patterns and
the conductive pattern;

said connecting electrodes, said center-electrode pattern and said conductive
pattern are comprised of at least one of a plated conductive material, a printed
conductive material, a sputtered conductive material, a vapor deposited conductive
material, and an applied paste conductive material formed directly on the sides, on the
top surface and on the bottom surface, respectively, of the ferrite; and

the center-electrode patterns and the insulating films are alternately disposed
such that each of the center electrode patterns includes a portion that is in direct contact
with a respective one of the insulating films and another portion that is in direct contact
with the top surface of the ferrite mother board.

Claim 12 (new): A nonreciprocal circuit device comprising:
a permanent magnet;
a center-electrode assembly according to Claim 11 to which a direct-current
magnetic field is applied by the permanent magnet; and
a metallic case accommodating the permanent magnet and the center-electrode
assembly.

Claim 13 (new): A communication apparatus comprising a nonreciprocal circuit
device according to Claim 12, and connected thereto, at least one of a transmitting
circuit and a reception circuit.

Claim 14 (new): A communication apparatus comprising a center-electrode
assembly according to Claim 11, and connected thereto, at least one of a transmission
circuit and a reception circuit.

Serial No. 09/931,685
August 16, 2004
Reply to the Office Action dated May 17, 2004
Page 6 of 11

Claim 15 (new): A center-electrode assembly according to claim 11, wherein the connecting electrodes are formed on grooves formed in the sides of the ferrite.

Claim 16 (new): A center-electrode assembly according to claim 11, further comprising:

ports directly formed on the sides of the ferrite; wherein
the ports are electrically connected with the connecting electrodes via the center-electrode patterns.

Claim 17 (new): A center-electrode assembly according to claim 16, further comprising:

gaps formed on the bottom surface of the ferrite; wherein
the gaps are provided between ends of the ports and an end of the conductive pattern.

Claim 18 (new): A center-electrode assembly according to claim 11, further comprising:

ports directly formed on the upper surface of the ferrite; wherein
the ports are electrically connected with the connecting electrodes via the center-electrode patterns.